

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

List of Claims

1. (currently amended) A data transmission method for transmitting data through a transmission line that is integrated with a plurality of links including a first link group, a second link group, and a third link group, the method comprising:

transmitting information data through the first link group that comprises at least one link included in the plurality of links;

transmitting parity data generated from the information data ~~through~~ through the second link group that comprises at least one link included in the plurality of links that is different from the first link group; and

transmitting error check data generated from the information data and the parity data, which is used for an the error correction when an error occurs in the information data or the parity data, through the third link group that comprises at least one link included in the plurality of links that is different from the first link group and the second link group; and

transmitting only the parity data through the second link group, and
transmitting only the error check data through the third link group,

wherein the first link group, the second link group, and the third link group are each different from each other.

2. (original) The method according to claim 1, further comprising:

compensating a difference of arrival time between at least two among the information data, the parity data and the error check data, when the difference of arrival time occurs; and

establishing a synchronization of the information data, the parity data and the error check data.

3. (original) The method according to claim 2, further comprising:

compensating, when the error correction of the information data or the parity data is performed by using the error check data, the difference of arrival time of the information data, the parity data and the error check data to detect the difference of arrival time, in which the error correction does not continuously occur; and

establishing a synchronization of the information data, the parity data and the error check data, using the detected difference of arrival time.

4. (original) The method according to claim 1, further comprising:

judging whether the lost of information data occurs in at least one link included in the first link group, based on the result of comparison of the information data and the parity data;

calculating an error rate from the data transmitted by the first link group, the data transmitted by the second link group, and the error check data transmitted by the third link group; and

replacing, when a loss of the information data occurs, the lost information data with the information data reproduced from the parity data, based on the result of a comparison of the error rate and a predetermined value.

5. (original) The method according to claim 1, further comprising:

calculating an error ratio and an error ratio variation per unit time from the data transmitted by the first link group, the data transmitted by the second link group and the error check data transmitted by the third link group; and

replacing the data transmitted by the first link group with the information data reproduced from the parity data when the error rate variation per unit time abruptly increases beyond a predetermined value.

6. (original) The method according to claim 1, further comprising:

generating the information data from a plurality of parallel signals that are composed of a bit string including a plurality of bits;

generating the parity data from a signal that is composed of a parity calculated from the bit string;

generating the error check data from at least one check signal that is composed of a check bit string generated by using an error correction code obtained from the bit string and the parity;

transforming the generated information data, the generated parity data and the generated error check data into a plurality of serial signals;

transmitting each of the plurality of serial signals through the first link group the second link group and the third link group;

receiving the transmitted plurality of serial signals;

converting the received plurality of serial signals into information data, the parity data and the error check data;

detecting the error of the information data and the parity data by using the check bit string included in the error check data; and

correcting the error of the information data by using the check bit string when an error is detected in the information data, and correcting the error of the parity data by using the check bit string when an error is detected in the parity data.

Claims 7-17 (canceled).